

ISSN 0824-880X

ISSN 0830-1638

ACIDIC PRECIPITATION
IN ONTARIO STUDY

ANNUAL STATISTICS OF
CONCENTRATION CUMULATIVE AMBIENT
AIR MONITORING NETWORK
1986

ARB-037-88

APIOS-005-88

JUNE 1988

TD
195.54
.06
A564
1986



Ministry
of the
Environment

Jim Bradley
Minister

RE2126

ACIDIC PRECIPITATION IN ONTARIO STUDY

ISSN 0824-880X

ANNUAL STATISTICS OF CONCENTRATION
CUMULATIVE AMBIENT AIR MONITORING NETWORK,
1986

ISSN 0830-1638

Special Studies and Research Management Unit
Atmospheric Research and Special Projects Section
Ontario Ministry of the Environment
Air Resources Branch
880 Bay Street, 4th Floor
Toronto, Ontario, Canada
M5S 1Z8

June 1988

ARB-037-88

APIOS-005-88

A.P.I.O.S. Coordination Office
Ontario Ministry of the Environment
6th Floor, 40 St. Clair Avenue West
Toronto, Ontario, Canada
M4V 1P5

c 1988 Her Majesty the Queen in Right of Ontario

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact Service Ontario Publications at copyright@ontario.ca

ACKNOWLEDGEMENT

This report was prepared by Diane Green of the APIOS Atmospheric Deposition and Chemistry Program. However, the data themselves are a product of the combined efforts of many individuals. Collection of air filter samples was coordinated by Bill Trayling (in Northeastern Region), Steve Elliott (in Southeastern Region), Scott Kennedy (in Southwestern Region), Wim Smits (in Northwestern Region) and J. P. Varto (in Central Region). Sample handling was carried out by Mike Stevenson and overall coordination by Bill Bardswick at the Air Resources Branch. Chemical analyses were performed at the Laboratory Services and Applied Research Branch under the coordination of Frank Tomassini. Invaluable clerical and computer assistance were provided by Koshy Mathew and Joe Lamb, respectively, of C.C. and C. Computer Systems. All enquiries regarding the reported data should be directed to Neville Reid, Co-Ordinator, Atmospheric Deposition and Chemistry Program at (416) 965-1634.

LIBRARY

Page

PART I	INTRODUCTION	II
--------	--------------	----

PART II	STATION DESCRIPTION AND LOCATION MAP	V
---------	--------------------------------------	---

PART III	SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY STATION	
----------	--	--

<u>Station</u>	<u>Map Ref. No.</u>	
Campbellford	13	1
Cloyne	14	2
Colchester	1	3
Dalhousie Mills	16	4
Dorion	31	5
Dorset	20	6
Ear Falls	35	7
Geraldton	30	8
Golden Lake	17	9
Gowganda	25	10
Killarney	23	11
Mattawa	22	12
McKellar	21	13
Moonbeam	27	14
Moosonee	38	15
Otter Island	39	16
Palmerston	8	17
Pickle Lake	36	18
Port Stanley	3	19
Quetico Centre	32	20
Shallow Lake	9	21
Smith's Falls	15	22
Turkey Lake	37	23
Uxbridge	11	24
Wilkesport	4	25

PART IV	SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY REGION	
---------	---	--

Central Region	26
Northeastern Region	27
Northwestern Region	28
Southeastern Region	29
Southwestern Region	30

PART I

INTRODUCTION

INTRODUCTION

This report was prepared by Diane Green. The statistical summaries presented in this report pertain to the 1986 analytical results obtained from the Acidic Precipitation in Ontario Study (APIOS) cumulative ambient air monitoring network. The relevant data can be obtained on request from the Air Resources Branch of the Ontario Ministry of the Environment. Any sample of which sampling period is less than 23 days or greater than 33 days is not included in the statistics calculations. All available data are utilized in the calculations except results reported as being unreliable (i.e., results are identified as unreasonable values by using the validation procedures; detailed description of the validation procedure is available from the Ministry upon request) or approximate (i.e., inexact results are reported due to laboratory difficulties, such as may be encountered in calibration or when the samples cannot be analyzed to confirm the reported values). In a very few cases, concentration levels exceeded the upper limit of the range of the chemical analysis. Rather than using the upper limit, a decision was made to exclude these values from the statistics generated in this report. Results labelled as <W are replaced by "zero". W is the level which the analytical technique cannot distinguish from zero. Prior to 1986, ^{if} a level was recorded less than one detection limit T, a value corresponding to one half the detection limit was utilized for statistical calculations as reported in the statistical summaries. These values are no longer halved. Note that T is normally about ten times W, and values above the T criteria are considered to be precise and accurate. W corresponds to approximately one standard deviation of low level duplicate of real samples. In the presented statistics summaries, "Total Sulphur" is calculated by the summation of sulphur of "Sulphur Dioxide" and "Sulphate".

Beginning in 1985, "Sulphur Dioxide" is corrected by the addition of nylon filter sulfate. In these reports sulphur loading on nylon filters is interpreted as sulphur dioxide. However, it is possible that organic sulphur compounds also contribute to this loading. Methods do not currently exist to quantify this contribution in routine network operation.

The statistical summaries presented in Parts III to IV include number of samples, mean (arithmetic/geometric), standard deviation (arithmetic/geometric), maximum, minimum, quartiles. These statistics are for an average sampling period.

Whatman 40 Blank Filters

The occurrence of non-zero blank values for the Whatman 40 filters used in the cumulative network should be borne in mind when interpreting data from this method. Typical loadings ($\mu\text{g}/\text{filter}$) for these blank filters, are summarized in Table 1.

RE2126

Table 1

Chemical Parameters	Total Samples	Blank Loading ($\mu\text{g}/\text{filter}$)		Number of Filters $\geq W$
		Mean*	S.D.*	
Sulphate	107	5.0 <T	0	22
Nitrate	107	1.4 <T	0.3	25
Calcium	96	2.88	0.68	96
Magnesium	97	0.69	1.33	65
Aluminum	97	0.59	0.56	45
Cadmium	97	0.010	0.006	91
Copper	97	0.03	0.02	70
Iron	97	0.92	0.70	95
Manganese	97	0.20	0.51	35
Nickel	97	0.04	0.07	54
Lead	97	0.12	0.13	38
Vanadium	97	0.02	0.002	36
Zinc	97	0.23	0.13	39
Sodium	107	2.66	0.95	106
Potassium	103	1.16	1.50	103
Chloride	107	8.8	2.8	105

*Calculated for $\geq W$ values only.

RE2126

INTRODUCTION

Le présent rapport a été préparé par Diane Green; il renferme les statistiques cumulatives de 1986 tirées du réseau d'échantillonnage de l'air ambiant, réseau créé dans le cadre de l'Étude sur les précipitations acides en Ontario (APIOS). On peut obtenir les données pertinentes auprès de la Direction des ressources atmosphériques du ministère de l'Environnement. Si l'échantillonnage a duré moins de 23 jours ou plus de 33, les échantillons n'ont pas été retenus. Toutes les données à notre disposition ont été utilisées dans les calculs, sauf celles jugées non fiables (c'est-à-dire les résultats qui, après vérification de leur validité, ont été signalés comme des valeurs excessives. On peut obtenir sur demande une description détaillée des procédés employés.) ou approximatives (c'est-à-dire les résultats qui, à cause de difficultés éprouvées en laboratoire, à la calibration, par exemple, ou lorsqu'il était impossible d'analyser à nouveau un échantillon pour confirmer la valeur indiquée, sont considérés comme inexacts). Dans quelques cas, les concentrations dépassaient le seuil supérieur fixé pour les analyses chimiques. Plutôt que d'utiliser le seuil supérieur, on a décidé d'exclure ces valeurs du présent rapport. Les résultats étiquetés <W sont remplacés par « zéro ». Dans le cadre d'une analyse technique, en effet, W correspond au niveau qu'il est impossible de distinguer du zéro. Avant 1986, si on mesurait un niveau inférieur au seuil de détection T, on utilisait aux fins d'analyse statistique une valeur correspondant à la moitié du seuil de détection, comme on l'indique d'ailleurs dans la présente étude. Ces valeurs ne sont plus coupées de moitié. Signalons que, normalement, T est environ dix fois supérieur à W et que les valeurs supérieures au seuil de détection T sont considérées comme justes et précises.

W correspond approximativement à un écart-type des valeurs basses obtenues par la double analyse des échantillons. Le paramètre « Total Sulphur » (soufre total) est la somme des concentrations de soufre que l'on trouve dans les rubriques « Sulphur Dioxide » (anhydride sulfureux) et « Sulfate » (sulfate).

Depuis 1985, les données sur l'anhydride sulfureux sont corrigées par l'addition des sulfates relevés sur le filtre de nylon. Dans ce cas-ci, les concentrations de soufre sont considérées comme de l'anhydride sulfureux. Il est possible toutefois que des composés organiques s'y soient mélangés. À l'heure actuelle, il n'existe pas de méthodes permettant, au cours des opérations de routine, de quantifier leur apport.

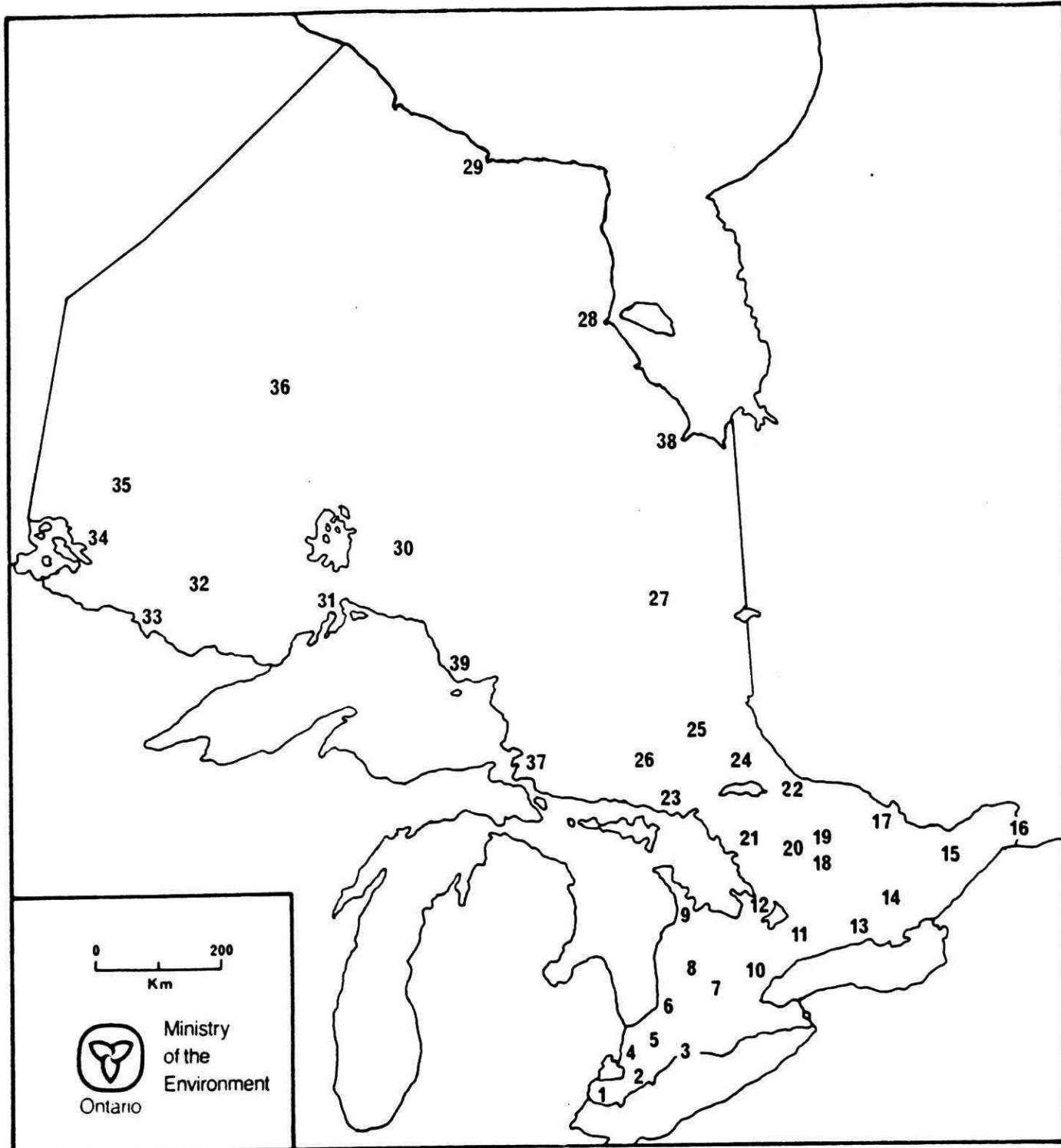
Voici les différentes catégories de statistiques figurant dans les sections III et IV : le nombre d'échantillons, les moyennes (arithmétiques/géométriques), les écarts-types (arithmétiques/géométriques), le maximum, le minimum et les quartiles. Toutes les statistiques représentent des périodes d'échantillonnage moyennes.

Filtres de contrôle Whatman 40

Il ne faut pas oublier, lorsqu'on interprète les données calculées à l'aide de cette méthode, qu'il y a souvent des valeurs de contrôle supérieures à zéro. On trouve au tableau 1 les concentrations typiques (en $\mu\text{g}/\text{filtre}$) relevées sur les filtres de contrôle.

PART II

STATION DESCRIPTION AND LOCATION MAP



- | | | |
|--|---|---|
| 1. Colchester* | 15. Smith's Falls* | 29. Winisk (rem. Dec '86) |
| 2. Merlin | 16. Dalhousie Mills* | 30. Geraldton (replaced Nakina, Aug '83) |
| 3. Pt. Stanley* | 17. Golden Lake* | 31. Dorion* |
| 4. Wilkesport* | 18. Wilberforce | 32. Quetico Centre* |
| 5. Alvinston | 19. Whitney | 33. Lac la Croix |
| 6. Huron Park | 20. Dorset* | 34. Experimental Lakes Area |
| 7. Waterloo | 21. McKellar* | 35. Ear Falls* |
| 8. Palmerston* | 22. Mattawa* | 36. Pickle Lake* |
| 9. Shallow Lake* | 23. Killarney* | 37. Turkey Lake* |
| 10. Milton (removed March '84) | 24. Bear Island | 38. Moosonee* (installed October '85) |
| 11. Uxbridge* | 25. Gowganda* | 39. Otter Island* (summer only) |
| 12. Coldwater | 26. Azure Lake (repl. Ramsey, June '83) | 40. Sutton, Quebec (Intercomparison Site) |
| 13. Campbellford* | 27. Moonbeam* | |
| 14. Cloyne* (repl. Kalladar, June '83) | 28. Attawapiskat (rem. Feb '84) | |

* indicates both a wet and dry deposition network site

APIOS CUMULATIVE WET AND DRY DEPOSITION NETWORK SITE DESCRIPTIONS

<u>MOE REGION</u>	<u>STATION NAME</u>	<u>ELEVATION</u> (m above MSL)	<u>LATITUDE</u> (North)	<u>LONGITUDE</u> (West)	<u>UTM GRID CO-ORDINANTS</u> (Northing) (Easting)	
Southwestern	Colchester	183	41°59'15"	82°55'41"	4650000	340300
	Alvinston	221	42°49'36"	81°50'04"	4942000	431550
	Pt. Stanley	213	42°40'22"	81°09'55"	4724050	486700
	Huron Park	250	43°17'28"	81°30'03"	4793000	459350
	Wilkesport	183	42°42'11"	82°21'13"	4728350	389150
	Merlin	191	42°14'47"	82°13'30"	4676400	398950
	Shallow Lake	229	44°34'54"	8°05'24"	4936200	492850
	Palmerston	389	43°48'19"	80°54'12"	4850050	507750
	Waterloo	343	43°28'39"	80°35'09"	4813750	533500
Central	Dorset	320	45°13'26"	78°55'52"	5009650	662400
	Coldwater	280	44°37'31"	79°32'08"	4942200	615900
	Milton	221	43°31'05"	79°55'54"	4818600	586350
	Uxbridge	244	44°12'46"	79°12'38"	4896800	643000
	Campbellford	175	44°17'28"	77°47'33"	4907600	277150
	Wilberforce	396	45°00'54"	78°12'58"	4988150	719400
Southeastern	Smith's Falls	122	44°56'41"	75°57'48"	4977100	423950
	Dalhousie Mills	69	45°19'00"	74°28'13"	5018100	541550
	Golden Lake	160	45°36'48"	77°12'03"	5053200	328400
	Cloyne	259	44°49'09"	77°11'45"	4964750	327100
Northeastern	McKellar	244	45°30'57"	79°55'19"	5040600	583950
	Azure Lake	244	47°28'12"	81°52'30"	5257650	434250
	Killarney	183	45°59'26"	81°29'18"	5092900	462200
	Bear Island	305	46°58'22"	80°04'40"	5202400	570350
	Mattawa	198	46°16'45"	78°49'19"	5127150	667800
	Gowganda	343	47°39'04"	80°46'32"	5277300	516600
	Moonbeam	244	49°19'16"	82°08'46"	5463600	416650
	Moosonee	4	51°12'35"	80°42'20"	5673000	520550
	Turkey Lake	472	47°03'15"	84°24'00"	5214250	696750
	Whitney	412	45°32'21"	78°15'35"	5045950	713950
Northwestern	Attawapiskat	9	52°56'00"	82°24'00"	NA	NA
	Otter Island	204	48°06'50"	86°04'25"	5328750	569500
	Dorion	244	48°50'33"	88°36'45"	5410800	382150
	E.L.A.	123	49°39'22"	93°43'28"	5500950	447350
	Geraldton	351	49°48'05"	86°46'00"	5516300	516750
	Lac La Croix	368	48°21'14"	92°12'32"	5355900	558400
	Ear Falls	350	50°38'31"	93°13'13"	5609800	484150
	Quetico Centre	420	48°44'24"	91°12'08"	5399750	632100
	Pickle Lake	360	51°27'41"	90°12'04"	5704800	694550
Quebec	Winisk	9	55°12'00"	85°08'00"	NA	NA
	Sutton	243	45°04'35"	72°40'35"	4995100	680950

PART III

SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY STATION

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CAMPBELLFORD/CUMULATIVE/LO-VOL #13

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	8	8	8	11	11	11	11	7	11
MAXIMUM :	15.14	7.52	10.08	1.16	0.72	4.17	0.21	1.694	0.337
MINIMUM :	0.00	0.69	0.23	0.25	0.16	0.12	0.00	0.035	0.041
RANGE :	15.14	6.83	9.85	0.91	0.56	4.05	0.21	1.659	0.296
ARITH. MEAN :	3.22	3.56	2.80	0.66	0.38	1.22	0.08	0.723	0.164
ARITH. STD. DEV :	5.01	2.09	3.03	0.29	0.17	1.18	0.07	0.591	0.096
GEOM. MEAN :	1.84	2.94	1.85	0.60	0.35	0.81	0.05	0.429	0.137
GEOM. STD. DEV. :	2.71	2.08	2.81	1.58	1.55	2.70	3.41	3.897	1.942
1ST QUARTILE :	0.87	2.25	1.72	0.43	0.24	0.39	0.02	0.089	0.075
2ND QUARTILE :	1.34	3.32	1.86	0.53	0.34	0.67	0.06	0.558	0.137
3RD QUARTILE :	3.08	4.59	2.45	0.84	0.45	1.72	0.11	1.036	0.215

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	0.313	0.343	0.041	0.017	0.0132	0.02164	0.0019	0.022	0.00086
MINIMUM :	0.027	0.014	0.009	0.001	0.0014	0.00077	0.0002	0.001	0.00021
RANGE :	0.286	0.329	0.032	0.017	0.0118	0.02087	0.0017	0.021	0.00066
ARITH. MEAN :	0.146	0.155	0.028	0.008	0.0051	0.00455	0.0009	0.015	0.00055
ARITH. STD. DEV :	0.088	0.115	0.009	0.005	0.0033	0.00608	0.0005	0.007	0.00022
GEOM. MEAN :	0.120	0.110	0.026	0.007	0.0043	0.00269	0.0008	0.012	0.00050
GEOM. STD. DEV. :	2.028	2.643	1.483	2.442	1.8786	2.69367	1.8567	2.452	1.60410
1ST QUARTILE :	0.068	0.055	0.023	0.005	0.0024	0.00121	0.0005	0.009	0.00032
2ND QUARTILE :	0.117	0.095	0.028	0.007	0.0041	0.00185	0.0009	0.014	0.00056
3RD QUARTILE :	0.193	0.239	0.030	0.010	0.0067	0.00453	0.0011	0.020	0.00069

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CLOYNE/CUMULATIVE/LO-VOL #14

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES	12	12	12	12	12	12	12	11	12
MAXIMUM	14.38	6.38	8.51	0.82	0.50	0.59	0.14	1.197	0.384
MINIMUM	0.70	1.74	1.20	0.24	0.15	0.13	0.02	0.047	0.081
RANGE	13.68	4.64	7.31	0.59	0.35	0.47	0.12	1.150	0.303
ARITH. MEAN	3.78	3.51	3.06	0.50	0.31	0.32	0.06	0.314	0.181
ARITH. STD. DEV	4.09	1.19	2.08	0.23	0.11	0.13	0.03	0.319	0.090
GEOM. MEAN	2.50	3.33	2.63	0.45	0.29	0.29	0.05	0.223	0.162
GEOM. STD. DEV.	2.49	1.40	1.70	1.62	1.47	1.51	1.77	2.330	1.648
1ST QUARTILE	1.24	2.69	1.93	0.29	0.23	0.22	0.03	0.125	0.099
2ND QUARTILE	2.49	3.53	2.30	0.46	0.34	0.30	0.05	0.184	0.172
3RD QUARTILE	3.74	4.04	2.99	0.72	0.37	0.39	0.07	0.341	0.227

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES	12	12	12	12	12	12	12	12	12
MAXIMUM	0.308	0.314	0.067	0.014	0.0120	0.14100	0.0294	0.036	0.00139
MINIMUM	0.063	0.035	0.012	0.004	0.0019	0.00063	0.0001	0.007	0.00028
RANGE	0.244	0.280	0.055	0.010	0.0102	0.14037	0.0293	0.029	0.00112
ARITH. MEAN	0.120	0.113	0.030	0.007	0.0045	0.01575	0.0041	0.016	0.00069
ARITH. STD. DEV	0.068	0.082	0.018	0.003	0.0031	0.03964	0.0081	0.008	0.00041
GEOM. MEAN	0.108	0.090	0.026	0.007	0.0038	0.00396	0.0017	0.015	0.00058
GEOM. STD. DEV.	1.574	1.999	1.755	1.440	1.7776	4.41453	3.6653	1.592	1.82681
1ST QUARTILE	0.079	0.055	0.016	0.005	0.0025	0.00139	0.0010	0.010	0.00035
2ND QUARTILE	0.092	0.081	0.023	0.007	0.0035	0.00387	0.0015	0.014	0.00052
3RD QUARTILE	0.141	0.156	0.041	0.008	0.0050	0.00747	0.0031	0.018	0.00103

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : COLCHESTER/CUMULATIVE/LO-VOL #1

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	11	11	11	13	12	13	13	11	13
MAXIMUM :	44.39	30.73	32.44	4.06	2.65	2.63	0.62	1.085	0.482
MINIMUM :	3.77	2.06	3.65	0.98	0.61	0.43	0.07	0.083	0.094
RANGE :	40.62	28.67	28.79	3.08	2.05	2.19	0.55	1.002	0.387
ARITH. MEAN :	12.29	8.38	8.94	1.64	1.05	0.89	0.21	0.238	0.206
ARITH. STD. DEV :	11.67	7.68	8.03	0.77	0.56	0.57	0.14	0.295	0.120
GEOM. MEAN :	9.11	6.68	7.30	1.53	0.97	0.78	0.18	0.164	0.180
GEOM. STD. DEV. :	2.17	1.91	1.79	1.41	1.49	1.62	1.78	2.161	1.704
1ST QUARTILE :	4.22	5.10	4.65	1.22	0.72	0.52	0.11	0.100	0.114
2ND QUARTILE :	8.11	5.50	6.43	1.43	0.90	0.70	0.16	0.111	0.148
3RD QUARTILE :	14.81	8.19	8.58	1.62	1.11	0.95	0.24	0.187	0.253

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.809	0.801	0.113	0.045	0.0194	0.01210	0.0068	0.165	0.00446
MINIMUM :	0.126	0.092	0.015	0.006	0.0017	0.00081	0.0003	0.031	0.00049
RANGE :	0.683	0.710	0.098	0.039	0.0177	0.01129	0.0066	0.135	0.00397
ARITH. MEAN :	0.266	0.221	0.042	0.015	0.0059	0.00485	0.0022	0.060	0.00144
ARITH. STD. DEV :	0.179	0.191	0.025	0.010	0.0056	0.00441	0.0016	0.035	0.00115
GEOM. MEAN :	0.232	0.178	0.037	0.013	0.0044	0.00308	0.0018	0.054	0.00115
GEOM. STD. DEV. :	1.649	1.868	1.620	1.649	2.0832	2.81404	2.1402	1.552	1.93915
1ST QUARTILE :	0.157	0.108	0.029	0.009	0.0028	0.00108	0.0013	0.039	0.00068
2ND QUARTILE :	0.196	0.142	0.034	0.013	0.0036	0.00247	0.0017	0.050	0.00102
3RD QUARTILE :	0.272	0.231	0.041	0.016	0.0049	0.00780	0.0023	0.058	0.00131

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DALHOUSIE MILLS/CUMULATIVE/LO-VOL #16

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	8	8	8	11	11	11	11	8	11
MAXIMUM :	6.86	5.82	5.21	1.41	1.31	2.35	0.18	2.404	0.817
MINIMUM :	0.85	2.38	1.30	0.39	0.27	0.46	0.04	0.151	0.104
RANGE :	6.01	3.44	3.92	1.02	1.04	1.89	0.14	2.253	0.713
ARITH. MEAN :	2.98	4.02	2.83	0.75	0.63	0.91	0.09	0.727	0.321
ARITH. STD. DEV. :	2.31	1.29	1.31	0.30	0.34	0.51	0.04	0.919	0.229
GEOM. MEAN :	2.32	3.83	2.58	0.70	0.56	0.83	0.09	0.395	0.257
GEOM. STD. DEV. :	2.10	1.40	1.58	1.48	1.71	1.52	1.45	3.008	2.016
1ST QUARTILE :	1.46	2.78	1.91	0.49	0.31	0.63	0.07	0.184	0.122
2ND QUARTILE :	1.82	4.06	2.40	0.65	0.46	0.77	0.08	0.271	0.206
3RD QUARTILE :	4.77	5.14	3.75	0.88	0.86	0.88	0.09	1.177	0.491

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	0.336	0.402	0.164	0.055	0.0140	0.06687	0.0090	0.042	0.00215
MINIMUM :	0.108	0.083	0.029	0.011	0.0024	0.00209	0.0003	0.016	0.00044
RANGE :	0.227	0.319	0.135	0.043	0.0116	0.06477	0.0087	0.026	0.00171
ARITH. MEAN :	0.163	0.161	0.055	0.027	0.0063	0.00934	0.0034	0.028	0.00086
ARITH. STD. DEV. :	0.068	0.092	0.038	0.014	0.0036	0.01912	0.0022	0.008	0.00047
GEOM. MEAN :	0.154	0.144	0.048	0.025	0.0056	0.00443	0.0027	0.027	0.00078
GEOM. STD. DEV. :	1.416	1.603	1.623	1.643	1.6837	2.62666	2.2986	1.380	1.52914
1ST QUARTILE :	0.113	0.094	0.033	0.015	0.0038	0.00224	0.0023	0.018	0.00056
2ND QUARTILE :	0.139	0.120	0.042	0.023	0.0047	0.00369	0.0026	0.028	0.00073
3RD QUARTILE :	0.167	0.195	0.048	0.033	0.0078	0.00469	0.0036	0.033	0.00095

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DORION/CUMULATIVE/LO-VOL #31

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	1.19	3.30	1.46	0.21	0.17	0.40	0.61	0.352	0.264
MINIMUM :	0.00	0.90	0.45	0.02	0.09	0.06	0.00	0.029	0.016
RANGE :	1.19	2.41	1.00	0.18	0.08	0.34	0.61	0.323	0.248
ARITH. MEAN :	0.57	1.56	0.81	0.11	0.13	0.17	0.12	0.111	0.122
ARITH. STD. DEV :	0.38	0.69	0.34	0.05	0.02	0.10	0.16	0.100	0.069
GEOM. MEAN :	0.54	1.44	0.74	0.10	0.13	0.15	0.09	0.083	0.102
GEOM. STD. DEV. :	1.90	1.47	1.52	1.85	1.20	1.72	2.91	2.127	2.032
1ST QUARTILE :	0.23	1.10	0.49	0.07	0.11	0.10	0.02	0.047	0.075
2ND QUARTILE :	0.52	1.27	0.68	0.11	0.12	0.15	0.07	0.070	0.091
3RD QUARTILE :	0.79	1.67	0.98	0.14	0.15	0.19	0.12	0.112	0.158

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.449	0.900	0.018	0.014	0.0077	0.00311	0.0036	0.014	0.00088
MINIMUM :	0.027	0.022	0.001	0.001	0.0006	0.00013	0.0000	0.001	0.00012
RANGE :	0.422	0.878	0.017	0.013	0.0071	0.00298	0.0036	0.013	0.00076
ARITH. MEAN :	0.126	0.187	0.006	0.005	0.0020	0.00145	0.0009	0.006	0.00036
ARITH. STD. DEV :	0.127	0.238	0.005	0.004	0.0018	0.00099	0.0010	0.004	0.00018
GEOM. MEAN :	0.087	0.103	0.004	0.004	0.0016	0.00107	0.0011	0.005	0.00033
GEOM. STD. DEV. :	2.379	3.150	2.175	2.085	1.8781	2.52751	2.7822	2.441	1.61176
1ST QUARTILE :	0.039	0.037	0.003	0.002	0.0012	0.00059	0.0003	0.003	0.00029
2ND QUARTILE :	0.081	0.085	0.004	0.005	0.0015	0.00124	0.0005	0.004	0.00031
3RD QUARTILE :	0.128	0.216	0.007	0.006	0.0018	0.00185	0.0007	0.007	0.00040

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DORSET/CUMULATIVE/LO-VOL #20

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIUM UG/M**3	POTASSIUM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	7.77	4.10	4.67	0.65	0.26	0.37	0.09	0.160	0.354
MINIMUM :	0.00	2.27	0.93	0.18	0.08	0.09	0.00	0.041	0.063
RANGE :	7.77	1.82	3.74	0.47	0.17	0.28	0.09	0.120	0.291
ARITH. MEAN :	2.22	2.97	2.10	0.41	0.14	0.19	0.04	0.073	0.139
ARITH. STD. DEV. :	2.07	0.64	1.00	0.16	0.06	0.09	0.02	0.032	0.078
GEOM. MEAN :	1.77	2.91	1.92	0.37	0.13	0.17	0.05	0.068	0.124
GEOM. STD. DEV. :	1.99	1.23	1.54	1.53	1.47	1.56	1.66	1.458	1.610
1ST QUARTILE :	0.99	2.43	1.39	0.27	0.09	0.13	0.02	0.049	0.083
2ND QUARTILE :	1.33	2.71	1.79	0.36	0.11	0.16	0.04	0.066	0.123
3RD QUARTILE :	2.43	3.27	2.25	0.52	0.17	0.20	0.05	0.080	0.141

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANESE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.207	0.235	0.042	0.007	0.0041	0.01686	0.0034	0.020	0.00073
MINIMUM :	0.033	0.020	0.007	0.002	0.0012	0.00036	0.0002	0.006	0.00018
RANGE :	0.174	0.215	0.035	0.005	0.0029	0.01650	0.0031	0.014	0.00055
ARITH. MEAN :	0.085	0.093	0.016	0.004	0.0028	0.00302	0.0010	0.012	0.00048
ARITH. STD. DEV. :	0.049	0.072	0.010	0.002	0.0008	0.00436	0.0009	0.005	0.00016
GEOM. MEAN :	0.074	0.068	0.014	0.004	0.0026	0.00170	0.0007	0.011	0.00045
GEOM. STD. DEV. :	1.743	2.315	1.650	1.436	1.3974	2.88465	2.1838	1.483	1.51045
1ST QUARTILE :	0.047	0.036	0.010	0.003	0.0021	0.00076	0.0005	0.008	0.00040
2ND QUARTILE :	0.065	0.045	0.015	0.004	0.0027	0.00163	0.0006	0.012	0.00048
3RD QUARTILE :	0.107	0.134	0.015	0.006	0.0033	0.00264	0.0009	0.014	0.00057

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : EAR FALLS/CUMULATIVE/LO-VOL #35

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	1.13	2.17	1.29	0.26	0.22	0.36	0.16	0.095	0.278
MINIMUM :	0.00	0.15	0.00	0.01	0.09	0.05	0.01	0.018	0.007
RANGE :	1.13	2.02	1.29	0.25	0.13	0.31	0.15	0.078	0.271
ARITH. MEAN :	0.45	1.11	0.58	0.10	0.14	0.14	0.04	0.060	0.120
ARITH. STD. DEV :	0.43	0.57	0.40	0.06	0.04	0.09	0.04	0.023	0.072
GEOM. MEAN :	0.64	0.93	0.54	0.08	0.13	0.12	0.03	0.055	0.091
GEOM. STD. DEV. :	1.92	2.04	2.00	2.46	1.28	1.74	2.02	1.582	2.592
1ST QUARTILE :	0.00	0.71	0.24	0.06	0.11	0.08	0.02	0.043	0.074
2ND QUARTILE :	0.25	1.05	0.56	0.09	0.13	0.11	0.03	0.054	0.108
3RD QUARTILE :	0.75	1.39	0.79	0.11	0.15	0.13	0.03	0.074	0.151

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.331	0.461	0.019	0.010	0.0107	0.01020	0.0079	0.011	0.00165
MINIMUM :	0.023	0.021	0.001	0.001	0.0003	0.00014	0.0000	0.000	0.00022
RANGE :	0.308	0.440	0.018	0.009	0.0104	0.01006	0.0079	0.011	0.00143
ARITH. MEAN :	0.079	0.106	0.006	0.003	0.0017	0.00237	0.0011	0.004	0.00058
ARITH. STD. DEV :	0.082	0.125	0.004	0.002	0.0027	0.00262	0.0021	0.003	0.00046
GEOM. MEAN :	0.058	0.067	0.005	0.002	0.0010	0.00143	0.0010	0.006	0.00046
GEOM. STD. DEV. :	2.104	2.592	1.842	1.811	2.5964	3.14729	3.3487	2.112	1.90497
1ST QUARTILE :	0.031	0.030	0.004	0.001	0.0005	0.00076	0.0003	0.002	0.00027
2ND QUARTILE :	0.048	0.054	0.005	0.002	0.0009	0.00165	0.0003	0.004	0.00039
3RD QUARTILE :	0.075	0.101	0.005	0.003	0.0014	0.00239	0.0005	0.005	0.00052

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GERALDTON/CUMULATIVE/LO-VOL #30

PERIOD OF REPORT : JAN 1,86 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	1.77	1.88	1.27	0.20	0.29	0.86	0.15	0.306	0.526
MINIMUM :	0.00	0.21	0.23	0.00	0.06	0.03	0.00	0.000	0.004
RANGE :	1.77	1.67	1.04	0.20	0.23	0.83	0.14	0.306	0.522
ARITH. MEAN :	0.65	1.04	0.67	0.09	0.15	0.24	0.04	0.062	0.143
ARITH. STD. DEV. :	0.62	0.51	0.35	0.06	0.06	0.23	0.04	0.079	0.129
GEOM. MEAN :	0.61	0.90	0.59	0.14	0.14	0.17	0.03	0.058	0.097
GEOM. STD. DEV. :	2.26	1.86	1.74	1.72	1.46	2.35	3.01	2.269	3.077
1ST QUARTILE :	0.17	0.69	0.35	0.05	0.13	0.11	0.01	0.024	0.071
2ND QUARTILE :	0.37	0.94	0.52	0.09	0.14	0.15	0.03	0.037	0.098
3RD QUARTILE :	0.84	1.25	0.82	0.11	0.15	0.21	0.05	0.050	0.168

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.110	0.127	0.041	0.005	0.0054	0.00418	0.0032	0.011	0.00081
MINIMUM :	0.020	0.017	0.000	0.001	0.0007	0.00013	0.0000	0.001	0.00014
RANGE :	0.090	0.110	0.041	0.005	0.0047	0.00406	0.0032	0.011	0.00067
ARITH. MEAN :	0.046	0.045	0.006	0.002	0.0020	0.00197	0.0009	0.004	0.00041
ARITH. STD. DEV. :	0.027	0.038	0.011	0.001	0.0015	0.00142	0.0011	0.003	0.00016
GEOM. MEAN :	0.040	0.035	0.004	0.002	0.0016	0.00119	0.0011	0.003	0.00038
GEOM. STD. DEV. :	1.722	2.036	3.047	1.903	1.8703	3.62593	3.0093	2.418	1.51729
1ST QUARTILE :	0.025	0.020	0.001	0.001	0.0010	0.00033	0.0002	0.002	0.00032
2ND QUARTILE :	0.035	0.023	0.002	0.001	0.0014	0.00185	0.0003	0.004	0.00039
3RD QUARTILE :	0.052	0.044	0.003	0.003	0.0018	0.00270	0.0009	0.005	0.00045

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GOLDEN LAKE/CUMULATIVE/LO-VOL #17

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES	5	5	5	12	12	12	12	5	12
MAXIMUM	3.67	3.99	2.69	1.93	2.04	0.45	0.09	0.781	0.337
MINIMUM	0.00	1.80	1.04	0.06	0.12	0.11	0.02	0.073	0.056
RANGE	3.67	2.19	1.65	1.86	1.92	0.35	0.07	0.708	0.281
ARITH. MEAN	1.68	2.96	1.83	0.51	0.60	0.24	0.05	0.283	0.173
ARITH. STD. DEV	1.38	0.84	0.65	0.50	0.66	0.10	0.02	0.308	0.085
GEOM. MEAN	1.64	2.86	1.73	0.35	0.39	0.23	0.05	0.176	0.152
GEOM. STD. DEV.	1.69	1.36	1.46	2.53	2.48	1.53	1.44	2.916	1.724
1ST QUARTILE	0.44	2.17	1.18	0.20	0.26	0.17	0.04	0.079	0.098
2ND QUARTILE	1.39	2.79	1.66	0.39	0.32	0.21	0.05	0.088	0.172
3RD QUARTILE	1.93	3.24	2.05	0.64	0.59	0.32	0.06	0.238	0.240

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES	12	12	12	12	12	12	12	12	12
MAXIMUM	0.152	0.173	0.066	0.010	0.0528	0.02851	0.0026	0.045	0.00262
MINIMUM	0.036	0.032	0.009	0.003	0.0030	0.00087	0.0003	0.003	0.00038
RANGE	0.115	0.141	0.057	0.007	0.0498	0.02764	0.0023	0.042	0.00223
ARITH. MEAN	0.091	0.087	0.021	0.006	0.0089	0.00669	0.0013	0.014	0.00085
ARITH. STD. DEV	0.037	0.049	0.016	0.002	0.0140	0.00860	0.0008	0.011	0.00063
GEOM. MEAN	0.083	0.074	0.018	0.006	0.0056	0.00380	0.0011	0.012	0.00072
GEOM. STD. DEV.	1.565	1.841	1.758	1.395	2.1778	2.88014	1.9606	1.916	1.73209
1ST QUARTILE	0.056	0.041	0.011	0.005	0.0035	0.00184	0.0008	0.009	0.00048
2ND QUARTILE	0.091	0.087	0.017	0.006	0.0048	0.00359	0.0011	0.012	0.00068
3RD QUARTILE	0.118	0.112	0.024	0.008	0.0062	0.00600	0.0020	0.015	0.00084

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GOWGANDA/CUMULATIVE/LO-VOL #25

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	4.60	2.68	2.94	0.32	0.28	0.27	0.09	0.266	0.243
MINIMUM :	0.42	1.20	0.74	0.06	0.01	0.07	0.00	0.026	0.061
RANGE :	4.18	1.47	2.20	0.26	0.27	0.20	0.09	0.241	0.182
ARITH. MEAN :	2.14	1.91	1.71	0.19	0.16	0.13	0.04	0.093	0.115
ARITH. STD. DEV :	1.35	0.48	0.75	0.09	0.07	0.06	0.03	0.074	0.057
GEOM. MEAN :	1.70	1.86	1.56	0.17	0.13	0.12	0.04	0.075	0.104
GEOM. STD. DEV. :	2.15	1.29	1.59	1.71	2.65	1.52	2.36	1.939	1.557
1ST QUARTILE :	0.80	1.50	1.11	0.10	0.13	0.08	0.02	0.048	0.075
2ND QUARTILE :	1.94	1.83	1.53	0.17	0.16	0.09	0.03	0.069	0.083
3RD QUARTILE :	2.56	2.23	1.98	0.25	0.20	0.15	0.05	0.089	0.131

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.185	0.228	0.037	0.006	0.0082	0.01101	0.0016	0.016	0.00263
MINIMUM :	0.026	0.017	0.006	0.001	0.0029	0.00037	0.0000	0.004	0.00009
RANGE :	0.160	0.211	0.030	0.004	0.0053	0.01064	0.0016	0.012	0.00254
ARITH. MEAN :	0.087	0.099	0.015	0.003	0.0051	0.00279	0.0005	0.010	0.00076
ARITH. STD. DEV :	0.057	0.085	0.009	0.002	0.0016	0.00294	0.0005	0.003	0.00062
GEOM. MEAN :	0.071	0.066	0.013	0.003	0.0049	0.00191	0.0008	0.009	0.00059
GEOM. STD. DEV. :	1.990	2.664	1.680	1.785	1.3686	2.41599	2.4845	1.394	2.16632
1ST QUARTILE :	0.041	0.026	0.009	0.001	0.0037	0.00109	0.0002	0.008	0.00040
2ND QUARTILE :	0.059	0.054	0.011	0.003	0.0045	0.00184	0.0003	0.009	0.00064
3RD QUARTILE :	0.113	0.160	0.015	0.004	0.0060	0.00240	0.0004	0.010	0.00072

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : KILLARNEY/CUMULATIVE/LO-VOL #23

PERIOD OF REPORT : JAN 27,86 TO JAN 4,87

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	12	12	12	12	12	12	12	12	12
MAXIMUM :	13.62	5.08	7.77	0.61	0.65	0.30	0.06	0.131	0.247
MINIMUM :	0.49	1.78	1.08	0.20	0.11	0.08	0.00	0.044	0.062
RANGE :	13.13	3.30	6.68	0.41	0.54	0.22	0.06	0.087	0.185
ARITH. MEAN :	4.72	2.87	3.32	0.36	0.26	0.17	0.04	0.065	0.112
ARITH. STD. DEV :	3.81	0.83	2.03	0.14	0.14	0.06	0.02	0.024	0.048
GEOM. MEAN :	3.30	2.78	2.81	0.34	0.23	0.16	0.05	0.062	0.105
GEOM. STD. DEV. :	2.65	1.29	1.82	1.47	1.56	1.47	1.64	1.364	1.422
1ST QUARTILE :	2.09	2.50	1.80	0.25	0.18	0.13	0.02	0.050	0.089
2ND QUARTILE :	4.41	2.75	3.08	0.31	0.24	0.18	0.04	0.058	0.101
3RD QUARTILE :	5.97	2.87	3.82	0.45	0.28	0.21	0.05	0.074	0.115

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	12	12	12	12	12	12	12	12	12
MAXIMUM :	0.141	0.177	0.022	0.006	0.0098	0.01264	0.0020	0.017	0.00135
MINIMUM :	0.032	0.017	0.009	0.002	0.0026	0.00040	0.0000	0.005	0.00011
RANGE :	0.109	0.160	0.013	0.003	0.0072	0.01224	0.0020	0.012	0.00124
ARITH. MEAN :	0.077	0.076	0.016	0.004	0.0052	0.00350	0.0008	0.010	0.00056
ARITH. STD. DEV :	0.034	0.053	0.004	0.001	0.0026	0.00311	0.0006	0.004	0.00034
GEOM. MEAN :	0.070	0.062	0.016	0.004	0.0047	0.00262	0.0012	0.009	0.00046
GEOM. STD. DEV. :	1.606	2.003	1.266	1.375	1.6361	2.29344	2.5004	1.424	2.07504
1ST QUARTILE :	0.049	0.040	0.014	0.003	0.0030	0.00210	0.0003	0.007	0.00031
2ND QUARTILE :	0.075	0.064	0.016	0.004	0.0045	0.00299	0.0005	0.008	0.00057
3RD QUARTILE :	0.100	0.094	0.018	0.005	0.0073	0.00378	0.0011	0.011	0.00072

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : MATTAWA/CUMULATIVE/LO-VOL #22

PERIOD OF REPORT : JAN 28,86 TO DEC 2,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	5.20	3.27	2.82	0.32	0.34	0.40	0.53	0.107	0.284
MINIMUM :	0.26	0.37	0.89	0.06	0.15	0.06	0.00	0.040	0.060
RANGE :	4.95	2.90	1.92	0.25	0.20	0.33	0.52	0.066	0.224
ARITH. MEAN :	1.82	2.16	1.63	0.19	0.22	0.22	0.19	0.067	0.106
ARITH. STD. DEV :	1.53	0.81	0.69	0.09	0.05	0.10	0.17	0.021	0.063
GEOM. MEAN :	1.31	1.92	1.51	0.17	0.22	0.19	0.11	0.064	0.096
GEOM. STD. DEV. :	2.43	1.81	1.50	1.68	1.26	1.66	4.23	1.357	1.547
1ST QUARTILE :	0.68	1.64	0.99	0.10	0.18	0.15	0.05	0.048	0.068
2ND QUARTILE :	1.03	2.04	1.53	0.17	0.22	0.19	0.13	0.058	0.084
3RD QUARTILE :	2.46	2.66	1.91	0.24	0.24	0.24	0.21	0.078	0.107

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	1.222	1.632	0.022	0.044	0.0058	0.01491	0.0022	0.022	0.00070
MINIMUM :	0.015	0.009	0.006	0.001	0.0010	0.00039	0.0003	0.003	0.00009
RANGE :	1.207	1.623	0.017	0.043	0.0048	0.01452	0.0020	0.019	0.00061
ARITH. MEAN :	0.453	0.544	0.016	0.015	0.0034	0.00284	0.0011	0.011	0.00040
ARITH. STD. DEV :	0.380	0.495	0.004	0.013	0.0013	0.00408	0.0006	0.005	0.00021
GEOM. MEAN :	0.294	0.325	0.015	0.010	0.0031	0.00174	0.0009	0.010	0.00034
GEOM. STD. DEV. :	3.271	3.947	1.432	2.605	1.6141	2.55147	1.9301	1.667	1.97361
1ST QUARTILE :	0.167	0.189	0.012	0.007	0.0023	0.00084	0.0005	0.008	0.00019
2ND QUARTILE :	0.321	0.412	0.016	0.008	0.0033	0.00170	0.0009	0.010	0.00036
3RD QUARTILE :	0.519	0.526	0.018	0.017	0.0041	0.00255	0.0016	0.012	0.00054

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : MCKELLAR/CUMULATIVE/LO-VOL #21

PERIOD OF REPORT : DEC 31,85 TO DEC 29,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	12	12	12	13	13	13	13	12	13
MAXIMUM :	10.87	4.28	6.44	0.72	0.77	0.46	0.11	0.310	0.615
MINIMUM :	0.59	0.43	1.27	0.18	0.12	0.09	0.00	0.040	0.061
RANGE :	10.28	3.86	5.17	0.54	0.65	0.37	0.11	0.271	0.554
ARITH. MEAN :	3.94	2.95	2.96	0.39	0.35	0.20	0.04	0.103	0.200
ARITH. STD. DEV :	3.57	1.09	1.93	0.19	0.19	0.11	0.03	0.079	0.193
GEOM. MEAN :	2.68	2.62	2.46	0.35	0.31	0.17	0.03	0.084	0.138
GEOM. STD. DEV. :	2.53	1.86	1.86	1.62	1.69	1.64	2.39	1.873	2.346
1ST QUARTILE :	1.41	2.38	1.41	0.24	0.21	0.12	0.02	0.051	0.071
2ND QUARTILE :	2.22	3.06	2.18	0.29	0.25	0.17	0.03	0.069	0.080
3RD QUARTILE :	7.06	3.90	4.84	0.56	0.41	0.21	0.05	0.122	0.206

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.194	0.234	0.044	0.009	0.0138	0.03178	0.0017	0.021	0.00107
MINIMUM :	0.032	0.030	0.008	0.002	0.0015	0.00025	0.0000	0.004	0.00008
RANGE :	0.162	0.204	0.036	0.007	0.0123	0.03153	0.0017	0.016	0.00099
ARITH. MEAN :	0.082	0.084	0.016	0.004	0.0037	0.00435	0.0007	0.010	0.00054
ARITH. STD. DEV :	0.041	0.062	0.009	0.002	0.0032	0.00837	0.0005	0.005	0.00031
GEOM. MEAN :	0.073	0.066	0.015	0.004	0.0031	0.00188	0.0011	0.009	0.00043
GEOM. STD. DEV. :	1.622	2.038	1.545	1.555	1.7509	3.45288	2.4017	1.717	2.22050
1ST QUARTILE :	0.049	0.032	0.011	0.003	0.0022	0.00076	0.0002	0.005	0.00027
2ND QUARTILE :	0.077	0.053	0.014	0.004	0.0028	0.00210	0.0006	0.008	0.00053
3RD QUARTILE :	0.095	0.105	0.017	0.004	0.0035	0.00269	0.0008	0.012	0.00067

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : MOONBEAM/CUMULATIVE/LO-VOL #27

PERIOD OF REPORT : DEC 31,85 TO DEC 29,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	10	10	10	10	10	10	10	10	10
MAXIMUM :	2.53	2.08	1.70	0.17	0.31	1.36	0.34	0.150	0.238
MINIMUM :	0.25	0.71	0.41	0.03	0.15	0.07	0.01	0.013	0.070
RANGE :	2.29	1.36	1.29	0.13	0.15	1.29	0.33	0.138	0.168
ARITH. MEAN :	0.80	1.24	0.81	0.09	0.21	0.37	0.09	0.064	0.115
ARITH. STD. DEV :	0.70	0.39	0.42	0.05	0.05	0.41	0.10	0.044	0.053
GEOM. MEAN :	0.61	1.19	0.73	0.07	0.20	0.24	0.05	0.051	0.107
GEOM. STD. DEV. :	2.15	1.36	1.61	1.78	1.24	2.60	2.62	2.068	1.489
1ST QUARTILE :	0.29	0.92	0.47	0.04	0.17	0.10	0.03	0.032	0.077
2ND QUARTILE :	0.61	1.20	0.67	0.07	0.21	0.23	0.04	0.054	0.091
3RD QUARTILE :	0.87	1.29	0.98	0.11	0.23	0.31	0.07	0.062	0.130

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	10	10	10	10	10	10	10	10	10
MAXIMUM :	0.372	0.519	0.008	0.010	0.0055	0.00339	0.0006	0.011	0.00078
MINIMUM :	0.023	0.015	0.002	0.001	0.0010	0.00014	0.0000	0.002	0.00004
RANGE :	0.349	0.504	0.006	0.009	0.0046	0.00325	0.0006	0.009	0.00074
ARITH. MEAN :	0.102	0.134	0.005	0.004	0.0028	0.00176	0.0003	0.005	0.00038
ARITH. STD. DEV :	0.112	0.160	0.002	0.003	0.0013	0.00131	0.0002	0.003	0.00026
GEOM. MEAN :	0.067	0.074	0.004	0.003	0.0025	0.00115	0.0007	0.004	0.00027
GEOM. STD. DEV. :	2.506	3.241	1.756	2.108	1.6741	3.06706	2.4012	1.763	2.59042
1ST QUARTILE :	0.029	0.022	0.002	0.002	0.0016	0.00046	0.0002	0.003	0.00014
2ND QUARTILE :	0.058	0.082	0.005	0.003	0.0028	0.00186	0.0003	0.005	0.00031
3RD QUARTILE :	0.091	0.126	0.006	0.005	0.0033	0.00289	0.0004	0.006	0.00056

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : MOOSONEE/CUMULATIVE/LO-VOL

PERIOD OF REPORT : JAN 23,86 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	6	6	6	6	6	6	6	5	6
MAXIMUM :	1.94	1.39	1.03	0.06	0.52	1.15	0.15	0.059	0.313
MINIMUM :	0.00	0.18	0.00	0.00	0.18	0.03	0.00	0.000	0.050
RANGE :	1.94	1.21	1.03	0.06	0.34	1.12	0.14	0.059	0.263
ARITH. MEAN :	0.72	0.69	0.56	0.04	0.31	0.36	0.06	0.036	0.165
ARITH. STD. DEV :	0.78	0.39	0.43	0.02	0.14	0.41	0.05	0.023	0.106
GEOM. MEAN :	0.88	0.59	0.63	0.08	0.28	0.20	0.04	0.082	0.137
GEOM. STD. DEV. :	2.11	1.96	1.82	1.84	1.53	3.46	3.88	1.947	2.000
1ST QUARTILE :	0.00	0.36	0.13	0.01	0.21	0.06	0.01	0.016	0.070
2ND QUARTILE :	0.60	0.65	0.56	0.04	0.23	0.28	0.04	0.035	0.131
3RD QUARTILE :	1.08	0.71	0.88	0.05	0.34	0.30	0.07	0.044	0.211

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	6	6	6	6	6	6	6	6	6
MAXIMUM :	0.096	0.069	0.007	0.004	0.0035	0.01021	0.0021	0.004	0.00111
MINIMUM :	0.013	0.006	0.000	0.000	0.0010	0.00016	0.0000	0.000	0.00013
RANGE :	0.082	0.063	0.007	0.004	0.0025	0.01005	0.0021	0.004	0.00098
ARITH. MEAN :	0.039	0.037	0.003	0.001	0.0017	0.00415	0.0007	0.002	0.00046
ARITH. STD. DEV :	0.029	0.024	0.003	0.001	0.0010	0.00419	0.0008	0.001	0.00046
GEOM. MEAN :	0.033	0.029	0.008	0.004	0.0015	0.00208	0.0019	0.005	0.00031
GEOM. STD. DEV. :	1.942	2.457	3.097	3.454	1.5997	4.67551	4.6076	3.340	2.62662
1ST QUARTILE :	0.017	0.015	0.001	0.000	0.0011	0.00055	0.0001	0.000	0.00015
2ND QUARTILE :	0.033	0.031	0.003	0.001	0.0012	0.00251	0.0003	0.002	0.00018
3RD QUARTILE :	0.039	0.048	0.004	0.002	0.0016	0.00566	0.0007	0.002	0.00060

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : OTTER ISLAND/CUMULATIVE/LO-VOL #39

PERIOD OF REPORT : APR 22,86 TO NOV 4,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	7	7	7	7	7	7	7	6	7
MAXIMUM :	1.44	2.18	1.44	0.30	0.14	0.25	0.05	0.074	0.091
MINIMUM :	0.00	0.40	0.20	0.03	0.05	0.03	0.00	0.000	0.023
RANGE :	1.44	1.78	1.24	0.27	0.09	0.22	0.05	0.074	0.067
ARITH. MEAN :	0.55	1.06	0.63	0.13	0.09	0.10	0.02	0.029	0.063
ARITH. STD. DEV :	0.44	0.62	0.40	0.08	0.03	0.07	0.02	0.026	0.021
GEOM. MEAN :	0.62	0.92	0.54	0.11	0.09	0.09	0.03	0.053	0.059
GEOM. STD. DEV. :	1.58	1.82	1.85	1.98	1.41	1.98	2.77	2.248	1.547
1ST QUARTILE :	0.18	0.47	0.29	0.06	0.06	0.04	0.00	0.008	0.041
2ND QUARTILE :	0.45	0.86	0.48	0.10	0.08	0.07	0.01	0.022	0.065
3RD QUARTILE :	0.57	1.30	0.71	0.14	0.11	0.12	0.03	0.033	0.072

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	7	7	7	7	7	7	7	7	7
MAXIMUM :	0.094	0.126	0.008	0.005	0.0036	0.00336	0.0027	0.012	0.00061
MINIMUM :	0.020	0.012	0.000	0.000	0.0007	0.00012	0.0000	0.001	0.00013
RANGE :	0.074	0.114	0.008	0.005	0.0029	0.00324	0.0027	0.011	0.00047
ARITH. MEAN :	0.045	0.046	0.003	0.002	0.0015	0.00116	0.0006	0.004	0.00037
ARITH. STD. DEV :	0.032	0.041	0.003	0.002	0.0011	0.00124	0.0010	0.004	0.00016
GEOM. MEAN :	0.036	0.034	0.007	0.004	0.0012	0.00060	0.0012	0.003	0.00034
GEOM. STD. DEV. :	2.040	2.358	2.738	3.289	1.8142	3.85890	4.2005	2.204	1.69456
1ST QUARTILE :	0.020	0.014	0.001	0.000	0.0008	0.00013	0.0001	0.001	0.00017
2ND QUARTILE :	0.022	0.023	0.002	0.001	0.0009	0.00050	0.0002	0.003	0.00036
3RD QUARTILE :	0.069	0.062	0.004	0.003	0.0017	0.00176	0.0003	0.003	0.00047

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : PALMERSTON/CUMULATIVE/LO-VOL #8

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	9	9	9	10	10	10	10	9	10
MAXIMUM :	13.46	7.15	7.55	1.48	0.64	1.75	0.58	0.301	0.186
MINIMUM :	1.08	2.47	1.99	0.69	0.38	0.23	0.05	0.070	0.063
RANGE :	12.38	4.68	5.56	0.79	0.26	1.52	0.54	0.231	0.123
ARITH. MEAN :	5.03	4.83	4.13	1.14	0.54	0.69	0.20	0.160	0.121
ARITH. STD. DEV :	4.72	1.46	2.17	0.25	0.11	0.45	0.16	0.086	0.040
GEOM. MEAN :	3.34	4.63	3.66	1.11	0.53	0.58	0.15	0.140	0.114
GEOM. STD. DEV. :	2.62	1.38	1.68	1.26	1.24	1.87	2.16	1.732	1.440
1ST QUARTILE :	1.49	3.94	2.20	0.97	0.40	0.34	0.09	0.087	0.083
2ND QUARTILE :	2.18	4.49	3.23	1.10	0.60	0.57	0.12	0.107	0.115
3RD QUARTILE :	6.42	5.06	4.88	1.29	0.62	0.84	0.25	0.214	0.147

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	10	10	10	10	10	10	10	10	10
MAXIMUM :	0.350	0.386	0.040	0.040	0.0082	0.01071	0.0021	0.056	0.00129
MINIMUM :	0.084	0.060	0.002	0.005	0.0016	0.00077	0.0000	0.015	0.00029
RANGE :	0.266	0.326	0.038	0.035	0.0067	0.00994	0.0021	0.041	0.00100
ARITH. MEAN :	0.154	0.159	0.024	0.012	0.0041	0.00324	0.0013	0.024	0.00073
ARITH. STD. DEV :	0.079	0.108	0.010	0.010	0.0020	0.00294	0.0006	0.012	0.00034
GEOM. MEAN :	0.141	0.131	0.020	0.010	0.0037	0.00246	0.0027	0.022	0.00066
GEOM. STD. DEV. :	1.526	1.907	2.311	1.725	1.6254	2.11105	2.0447	1.441	1.61379
1ST QUARTILE :	0.100	0.069	0.019	0.008	0.0026	0.00147	0.0010	0.017	0.00045
2ND QUARTILE :	0.125	0.112	0.026	0.009	0.0035	0.00213	0.0014	0.021	0.00064
3RD QUARTILE :	0.162	0.199	0.028	0.011	0.0044	0.00329	0.0015	0.024	0.00087

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : PICKLE LAKE/CUMULATIVE/LO-VOL #36

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIUM UG/M**3	POTASSIUM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	1.81	5.23	2.65	0.25	0.77	0.84	0.24	0.131	0.845
MINIMUM :	0.00	0.47	0.00	0.02	0.08	0.05	0.02	0.023	0.025
RANGE :	1.81	4.76	2.65	0.23	0.69	0.79	0.22	0.108	0.820
ARITH. MEAN :	0.47	1.50	0.71	0.09	0.19	0.34	0.10	0.054	0.160
ARITH. STD. DEV. :	0.59	1.28	0.72	0.06	0.18	0.26	0.08	0.035	0.213
GEOM. MEAN :	0.59	1.18	0.57	0.07	0.16	0.26	0.07	0.047	0.104
GEOM. STD. DEV. :	2.25	1.97	2.28	2.02	1.73	2.35	2.35	1.750	2.376
1ST QUARTILE :	0.00	0.67	0.20	0.04	0.11	0.15	0.03	0.031	0.064
2ND QUARTILE :	0.19	1.06	0.53	0.07	0.14	0.25	0.06	0.036	0.087
3RD QUARTILE :	0.58	1.61	0.73	0.10	0.17	0.46	0.12	0.059	0.139

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANESE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.439	0.452	0.033	0.010	0.0132	0.00514	0.0047	0.050	0.00121
MINIMUM :	0.017	0.017	0.002	0.001	0.0005	0.00075	0.0000	0.001	0.00021
RANGE :	0.423	0.435	0.031	0.009	0.0127	0.00439	0.0047	0.049	0.00100
ARITH. MEAN :	0.146	0.157	0.014	0.005	0.0052	0.00231	0.0010	0.007	0.00048
ARITH. STD. DEV. :	0.126	0.135	0.010	0.003	0.0043	0.00128	0.0013	0.013	0.00026
GEOM. MEAN :	0.094	0.092	0.010	0.003	0.0033	0.00200	0.0011	0.003	0.00043
GEOM. STD. DEV. :	2.925	3.455	2.158	2.301	3.0312	1.78012	3.1283	2.910	1.58000
1ST QUARTILE :	0.033	0.020	0.006	0.002	0.0016	0.00146	0.0002	0.002	0.00031
2ND QUARTILE :	0.115	0.134	0.010	0.004	0.0038	0.00178	0.0004	0.003	0.00041
3RD QUARTILE :	0.190	0.237	0.013	0.006	0.0072	0.00292	0.0009	0.004	0.00057

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : PORT STANLEY/CUMULATIVE/LO-VOL #3

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	12	12	12	13	13	13	13	12	13
MAXIMUM :	16.65	6.54	9.23	1.79	1.72	0.84	0.21	4.729	0.475
MINIMUM :	1.37	1.91	1.38	0.49	0.35	0.17	0.00	0.046	0.062
RANGE :	15.28	4.63	7.85	1.30	1.37	0.67	0.21	4.683	0.412
ARITH. MEAN :	6.85	3.60	4.62	0.96	0.64	0.44	0.08	0.589	0.155
ARITH. STD. DEV :	5.83	1.27	2.96	0.38	0.36	0.20	0.05	1.340	0.123
GEOM. MEAN :	4.58	3.40	3.78	0.90	0.57	0.39	0.09	0.156	0.124
GEOM. STD. DEV. :	2.63	1.42	1.96	1.46	1.54	1.62	1.66	4.190	1.911
1ST QUARTILE :	1.83	2.56	2.26	0.65	0.41	0.29	0.05	0.063	0.075
2ND QUARTILE :	3.11	3.77	2.75	0.91	0.50	0.37	0.07	0.090	0.095
3RD QUARTILE :	12.68	4.09	7.36	1.04	0.69	0.54	0.08	0.333	0.148

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.356	0.369	0.060	0.021	0.0066	0.01420	0.0018	0.041	0.00235
MINIMUM :	0.020	0.031	0.010	0.005	0.0012	0.00036	0.0000	0.007	0.00012
RANGE :	0.336	0.337	0.051	0.016	0.0054	0.01384	0.0018	0.035	0.00223
ARITH. MEAN :	0.139	0.136	0.027	0.009	0.0030	0.00316	0.0010	0.019	0.00064
ARITH. STD. DEV :	0.086	0.086	0.014	0.004	0.0016	0.00378	0.0005	0.009	0.00059
GEOM. MEAN :	0.113	0.113	0.024	0.008	0.0026	0.00195	0.0017	0.017	0.00049
GEOM. STD. DEV. :	2.093	1.920	1.668	1.488	1.6595	2.73604	2.0824	1.628	2.05480
1ST QUARTILE :	0.085	0.075	0.016	0.006	0.0019	0.00116	0.0007	0.012	0.00032
2ND QUARTILE :	0.115	0.117	0.026	0.007	0.0023	0.00162	0.0010	0.016	0.00045
3RD QUARTILE :	0.174	0.161	0.031	0.009	0.0033	0.00276	0.0013	0.023	0.00058

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : QUETICO CENTRE/CUMULATIVE/LO-VOL #32

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	1.06	2.00	1.04	0.23	0.20	0.22	0.06	0.098	0.235
MINIMUM :	0.00	0.86	0.34	0.05	0.09	0.08	0.00	0.020	0.017
RANGE :	1.06	1.14	0.70	0.18	0.10	0.14	0.06	0.078	0.218
ARITH. MEAN :	0.47	1.26	0.65	0.12	0.14	0.13	0.03	0.044	0.098
ARITH. STD. DEV :	0.34	0.35	0.23	0.05	0.03	0.05	0.02	0.023	0.060
GEOM. MEAN :	0.47	1.21	0.62	0.11	0.14	0.12	0.04	0.040	0.080
GEOM. STD. DEV. :	1.85	1.31	1.43	1.53	1.25	1.47	1.68	1.603	2.090
1ST QUARTILE :	0.18	0.89	0.42	0.08	0.11	0.08	0.02	0.026	0.049
2ND QUARTILE :	0.36	1.16	0.60	0.10	0.14	0.12	0.02	0.038	0.084
3RD QUARTILE :	0.61	1.47	0.77	0.14	0.15	0.16	0.03	0.050	0.118

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	0.149	0.148	0.021	0.088	0.0062	0.00347	0.0027	0.008	0.00048
MINIMUM :	0.005	0.018	0.000	0.001	0.0004	0.00013	0.0002	0.001	0.00019
RANGE :	0.144	0.129	0.020	0.087	0.0059	0.00335	0.0025	0.008	0.00029
ARITH. MEAN :	0.063	0.069	0.004	0.010	0.0016	0.00166	0.0009	0.005	0.00036
ARITH. STD. DEV :	0.046	0.045	0.006	0.026	0.0017	0.00098	0.0008	0.003	0.00010
GEOM. MEAN :	0.046	0.056	0.002	0.003	0.0011	0.00128	0.0007	0.004	0.00035
GEOM. STD. DEV. :	2.617	2.007	2.961	3.319	2.2949	2.48811	2.3673	2.228	1.33801
1ST QUARTILE :	0.027	0.030	0.001	0.001	0.0005	0.00082	0.0002	0.002	0.00027
2ND QUARTILE :	0.043	0.048	0.003	0.002	0.0011	0.00146	0.0007	0.003	0.00034
3RD QUARTILE :	0.089	0.092	0.003	0.004	0.0017	0.00209	0.0012	0.007	0.00044

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SHALLOW LAKE/CUMULATIVE/LO-VOL #9

PERIOD OF REPORT : DEC 31,85 TO DEC 31,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	10.02	7.75	5.61	1.02	0.49	0.99	0.27	2.125	0.137
MINIMUM :	0.41	1.60	1.28	0.26	0.23	0.14	0.02	0.022	0.055
RANGE :	9.61	6.16	4.33	0.76	0.25	0.85	0.25	2.103	0.082
ARITH. MEAN :	3.71	3.47	3.01	0.68	0.35	0.39	0.09	0.355	0.097
ARITH. STD. DEV :	3.49	1.72	1.47	0.25	0.09	0.24	0.07	0.619	0.028
GEOM. MEAN :	2.38	3.16	2.70	0.62	0.34	0.34	0.07	0.136	0.093
GEOM. STD. DEV. :	2.80	1.56	1.63	1.56	1.30	1.79	2.07	3.973	1.378
1ST QUARTILE :	1.03	2.24	1.66	0.39	0.26	0.19	0.04	0.042	0.061
2ND QUARTILE :	1.90	2.98	2.48	0.67	0.33	0.32	0.06	0.081	0.095
3RD QUARTILE :	5.85	3.69	3.84	0.87	0.43	0.46	0.11	0.350	0.120

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	11	11	11	11	11	11	11	11	11
MAXIMUM :	0.254	0.280	0.051	0.017	0.0103	0.01055	0.0020	0.030	0.00077
MINIMUM :	0.029	0.023	0.006	0.002	0.0024	0.00056	0.0000	0.001	0.00018
RANGE :	0.224	0.257	0.045	0.015	0.0079	0.00999	0.0020	0.029	0.00059
ARITH. MEAN :	0.105	0.112	0.018	0.007	0.0047	0.00297	0.0009	0.014	0.00045
ARITH. STD. DEV :	0.072	0.087	0.012	0.005	0.0022	0.00287	0.0005	0.008	0.00017
GEOM. MEAN :	0.086	0.084	0.016	0.006	0.0043	0.00212	0.0017	0.010	0.00042
GEOM. STD. DEV. :	1.943	2.267	1.764	1.927	1.5292	2.31935	2.2866	2.867	1.50136
1ST QUARTILE :	0.046	0.039	0.011	0.003	0.0027	0.00108	0.0004	0.009	0.00031
2ND QUARTILE :	0.077	0.069	0.014	0.006	0.0042	0.00166	0.0008	0.010	0.00041
3RD QUARTILE :	0.133	0.179	0.019	0.007	0.0050	0.00386	0.0010	0.020	0.00051

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SMITH'S FALLS/CUMULATIVE/LO-VOL #15

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	8	8	8	12	12	12	12	8	12
MAXIMUM :	3.09	5.75	2.84	1.32	1.19	1.95	0.66	7.135	0.865
MINIMUM :	0.00	2.67	0.93	0.36	0.23	0.41	0.02	0.121	0.099
RANGE :	3.09	3.08	1.91	0.96	0.96	1.54	0.64	7.014	0.766
ARITH. MEAN :	1.09	3.49	1.71	0.68	0.50	0.91	0.25	1.698	0.265
ARITH. STD. DEV. :	1.02	1.02	0.70	0.32	0.33	0.51	0.17	2.367	0.238
GEOM. MEAN :	0.99	3.38	1.59	0.62	0.42	0.80	0.19	0.791	0.199
GEOM. STD. DEV. :	1.89	1.29	1.49	1.55	1.83	1.67	2.53	3.878	2.095
1ST QUARTILE :	0.55	2.78	1.20	0.43	0.27	0.53	0.15	0.319	0.107
2ND QUARTILE :	0.69	3.17	1.42	0.56	0.31	0.70	0.19	0.895	0.151
3RD QUARTILE :	1.58	3.78	2.32	0.88	0.76	1.15	0.31	1.950	0.357

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	12	12	12	12	12	12	12	12	12
MAXIMUM :	0.306	0.299	0.186	0.166	0.0064	0.00659	0.0072	0.033	0.00121
MINIMUM :	0.095	0.069	0.019	0.009	0.0015	0.00108	0.0005	0.008	0.00028
RANGE :	0.211	0.230	0.167	0.158	0.0049	0.00551	0.0068	0.025	0.00093
ARITH. MEAN :	0.157	0.152	0.050	0.027	0.0034	0.00287	0.0021	0.016	0.00063
ARITH. STD. DEV. :	0.066	0.085	0.045	0.045	0.0015	0.00178	0.0018	0.007	0.00029
GEOM. MEAN :	0.146	0.132	0.040	0.015	0.0031	0.00242	0.0016	0.015	0.00057
GEOM. STD. DEV. :	1.458	1.711	1.832	2.352	1.5717	1.84746	2.1413	1.540	1.57938
1ST QUARTILE :	0.109	0.081	0.026	0.010	0.0023	0.00136	0.0011	0.011	0.00044
2ND QUARTILE :	0.131	0.126	0.037	0.012	0.0029	0.00258	0.0015	0.014	0.00060
3RD QUARTILE :	0.198	0.213	0.047	0.015	0.0046	0.00355	0.0024	0.020	0.00078

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : TURKEY LAKE/CUMULATIVE/LO-VOL #37

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	12	13	12	12	13	13	13	13	13
MAXIMUM :	5.05	3.79	3.37	0.68	0.35	0.36	0.10	0.980	0.205
MINIMUM :	0.24	0.22	0.23	0.00	0.08	0.01	0.00	0.015	0.030
RANGE :	4.81	3.57	3.14	0.68	0.27	0.35	0.10	0.965	0.175
ARITH. MEAN :	1.91	1.94	1.65	0.24	0.18	0.15	0.03	0.120	0.098
ARITH. STD. DEV :	1.39	1.04	0.91	0.18	0.08	0.09	0.03	0.259	0.043
GEOM. MEAN :	1.42	1.54	1.37	0.25	0.17	0.12	0.04	0.056	0.090
GEOM. STD. DEV. :	2.43	2.32	2.04	1.81	1.58	2.23	2.35	2.626	1.580
1ST QUARTILE :	0.89	1.44	0.99	0.15	0.11	0.09	0.02	0.034	0.071
2ND QUARTILE :	1.82	1.78	1.52	0.20	0.17	0.14	0.02	0.049	0.083
3RD QUARTILE :	2.62	2.53	2.23	0.34	0.21	0.16	0.04	0.064	0.112

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.188	0.217	0.031	0.008	0.0048	0.01168	0.0018	0.023	0.00073
MINIMUM :	0.020	0.005	0.001	0.001	0.0007	0.00031	0.0000	0.000	0.00003
RANGE :	0.168	0.212	0.030	0.007	0.0041	0.01137	0.0018	0.023	0.00070
ARITH. MEAN :	0.066	0.071	0.007	0.003	0.0025	0.00300	0.0006	0.007	0.00037
ARITH. STD. DEV :	0.048	0.063	0.008	0.002	0.0012	0.00317	0.0005	0.008	0.00019
GEOM. MEAN :	0.054	0.047	0.005	0.003	0.0023	0.00180	0.0008	0.008	0.00030
GEOM. STD. DEV. :	1.945	2.815	2.404	1.850	1.6314	3.04437	2.4726	2.995	2.33340
1ST QUARTILE :	0.037	0.028	0.004	0.003	0.0017	0.00067	0.0002	0.002	0.00024
2ND QUARTILE :	0.047	0.042	0.005	0.003	0.0022	0.00183	0.0003	0.004	0.00037
3RD QUARTILE :	0.071	0.088	0.005	0.004	0.0028	0.00332	0.0007	0.007	0.00044

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : UXBRIDGE/CUMULATIVE/LO-VOL #11

PERIOD OF REPORT : JAN 28,86 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES	8	8	8	9	9	9	9	8	8
MAXIMUM	10.90	4.43	6.29	0.99	0.66	1.54	0.16	0.271	0.510
MINIMUM	1.54	1.36	1.22	0.40	0.24	0.19	0.01	0.030	0.019
RANGE	9.36	3.07	5.07	0.59	0.42	1.34	0.15	0.241	0.491
ARITH. MEAN	3.93	2.60	2.83	0.68	0.40	0.72	0.07	0.121	0.245
ARITH. STD. DEV	2.94	1.03	1.53	0.20	0.14	0.39	0.04	0.076	0.189
GEOM. MEAN	3.32	2.43	2.55	0.66	0.38	0.63	0.06	0.101	0.148
GEOM. STD. DEV.	1.78	1.48	1.61	1.36	1.43	1.83	2.14	1.951	3.570
1ST QUARTILE	2.43	1.85	1.94	0.52	0.26	0.42	0.04	0.074	0.053
2ND QUARTILE	3.18	2.40	2.68	0.63	0.37	0.72	0.06	0.104	0.269
3RD QUARTILE	3.89	3.25	2.95	0.79	0.47	0.77	0.08	0.154	0.392

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANESE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES	9	9	9	9	9	9	9	9	9
MAXIMUM	0.362	0.362	0.054	0.010	0.0546	0.01658	0.0034	0.043	0.00090
MINIMUM	0.059	0.044	0.007	0.002	0.0018	0.00036	0.0003	0.002	0.00013
RANGE	0.303	0.318	0.047	0.008	0.0529	0.01622	0.0031	0.041	0.00077
ARITH. MEAN	0.149	0.156	0.023	0.007	0.0084	0.00419	0.0012	0.016	0.00048
ARITH. STD. DEV	0.088	0.096	0.015	0.003	0.0174	0.00516	0.0010	0.011	0.00021
GEOM. MEAN	0.131	0.130	0.019	0.006	0.0034	0.00230	0.0009	0.013	0.00043
GEOM. STD. DEV.	1.690	1.975	1.908	1.576	3.0200	3.26074	2.2076	2.170	1.71731
1ST QUARTILE	0.088	0.082	0.011	0.005	0.0018	0.00103	0.0005	0.010	0.00034
2ND QUARTILE	0.132	0.137	0.018	0.006	0.0020	0.00179	0.0009	0.013	0.00047
3RD QUARTILE	0.158	0.173	0.026	0.008	0.0028	0.00424	0.0014	0.017	0.00056

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : WILKESPORT/CUMULATIVE/LO-VOL #4

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	11	11	11	13	13	13	13	11	13
MAXIMUM :	18.35	9.82	10.19	1.99	1.21	2.05	0.38	0.260	0.759
MINIMUM :	3.97	3.04	3.51	0.85	0.57	0.34	0.07	0.065	0.086
RANGE :	14.38	6.77	6.68	1.13	0.64	1.71	0.30	0.195	0.673
ARITH. MEAN :	9.70	6.15	6.90	1.24	0.80	0.83	0.16	0.129	0.225
ARITH. STD. DEV :	5.40	1.80	2.44	0.35	0.20	0.42	0.09	0.060	0.192
GEOM. MEAN :	8.34	5.90	6.48	1.20	0.78	0.76	0.14	0.118	0.177
GEOM. STD. DEV. :	1.79	1.36	1.46	1.31	1.27	1.56	1.65	1.520	1.955
1ST QUARTILE :	4.50	4.82	4.27	0.89	0.65	0.61	0.08	0.085	0.106
2ND QUARTILE :	6.15	5.94	6.00	1.17	0.78	0.77	0.15	0.105	0.132
3RD QUARTILE :	14.47	6.92	9.24	1.41	0.80	0.83	0.15	0.142	0.228

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	13	13	13	13	13	13	13	13	13
MAXIMUM :	0.451	0.487	0.070	0.019	0.0079	0.02215	0.0048	0.063	0.00985
MINIMUM :	0.114	0.098	0.025	0.007	0.0020	0.00154	0.0004	0.021	0.00045
RANGE :	0.336	0.389	0.046	0.013	0.0059	0.02061	0.0045	0.043	0.00939
ARITH. MEAN :	0.216	0.205	0.033	0.012	0.0042	0.00597	0.0028	0.038	0.00152
ARITH. STD. DEV :	0.089	0.112	0.012	0.004	0.0015	0.00647	0.0012	0.012	0.00251
GEOM. MEAN :	0.202	0.181	0.032	0.011	0.0039	0.00413	0.0025	0.036	0.00096
GEOM. STD. DEV. :	1.451	1.689	1.321	1.391	1.4400	2.26177	1.9327	1.380	2.14406
1ST QUARTILE :	0.148	0.107	0.026	0.009	0.0032	0.00213	0.0021	0.029	0.00065
2ND QUARTILE :	0.182	0.183	0.029	0.012	0.0041	0.00360	0.0027	0.037	0.00082
3RD QUARTILE :	0.245	0.255	0.034	0.014	0.0045	0.00414	0.0030	0.045	0.00104

PART IV

SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY REGION

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CENTRAL REGION/CUMULATIVE/LO-VOL.

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	29	29	29	33	33	33	33	28	32
MAXIMUM :	15.14	7.52	10.08	1.16	0.72	4.17	0.21	1.694	0.510
MINIMUM :	0.00	0.69	0.23	0.18	0.08	0.09	0.00	0.030	0.019
RANGE :	15.14	6.83	9.85	0.98	0.64	4.08	0.21	1.664	0.491
ARITH. MEAN :	2.97	3.03	2.49	0.57	0.29	0.68	0.06	0.249	0.174
ARITH. STD. DEV :	3.29	1.29	1.85	0.25	0.17	0.82	0.05	0.397	0.123
GEOM. MEAN :	2.13	2.78	2.06	0.51	0.24	0.41	0.05	0.121	0.135
GEOM. STD. DEV. :	2.17	1.56	1.92	1.60	1.89	2.71	2.34	2.958	2.171
1ST QUARTILE :	1.16	2.31	1.62	0.38	0.14	0.17	0.03	0.056	0.081
2ND QUARTILE :	1.56	2.79	1.97	0.53	0.26	0.36	0.05	0.088	0.132
3RD QUARTILE :	3.44	3.56	2.75	0.65	0.39	0.74	0.08	0.173	0.215

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	33	33	33	33	33	33	33	33	33
MAXIMUM :	0.362	0.362	0.054	0.017	0.0546	0.02164	0.0034	0.043	0.00090
MINIMUM :	0.027	0.014	0.007	0.001	0.0012	0.00036	0.0002	0.001	0.00013
RANGE :	0.335	0.348	0.047	0.017	0.0534	0.02128	0.0032	0.042	0.00077
ARITH. MEAN :	0.123	0.131	0.022	0.006	0.0051	0.00385	0.0010	0.014	0.00050
ARITH. STD. DEV :	0.079	0.097	0.012	0.003	0.0092	0.00508	0.0008	0.007	0.00019
GEOM. MEAN :	0.102	0.096	0.019	0.005	0.0033	0.00215	0.0008	0.012	0.00046
GEOM. STD. DEV. :	1.898	2.384	1.759	1.879	2.0518	2.87898	2.0480	1.973	1.58264
1ST QUARTILE :	0.064	0.044	0.012	0.004	0.0021	0.00099	0.0005	0.008	0.00039
2ND QUARTILE :	0.106	0.119	0.020	0.006	0.0028	0.00185	0.0009	0.013	0.00051
3RD QUARTILE :	0.151	0.173	0.029	0.008	0.0039	0.00342	0.0012	0.017	0.00060

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTHEASTERN REGION/CUMULATIVE/LO-VOL.

PERIOD OF REPORT : DEC 31,85 TO JAN 4,87

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	76	77	76	77	78	78	78	76	78
MAXIMUM :	13.62	5.08	7.77	0.72	0.77	1.36	0.53	0.980	0.615
MINIMUM :	0.00	0.18	0.00	0.00	0.01	0.01	0.00	0.000	0.030
RANGE :	13.62	4.90	7.77	0.72	0.77	1.34	0.53	0.980	0.585
ARITH. MEAN :	2.46	2.08	1.93	0.23	0.24	0.21	0.07	0.083	0.129
ARITH. STD. DEV :	2.63	1.03	1.51	0.17	0.13	0.21	0.09	0.116	0.099
GEOM. MEAN :	1.57	1.75	1.51	0.19	0.21	0.16	0.05	0.066	0.108
GEOM. STD. DEV. :	2.68	1.96	2.06	2.19	1.81	2.02	2.79	1.889	1.716
1ST QUARTILE :	0.75	1.38	0.96	0.10	0.16	0.09	0.02	0.045	0.074
2ND QUARTILE :	1.79	2.03	1.52	0.21	0.22	0.16	0.04	0.058	0.095
3RD QUARTILE :	3.10	2.75	2.43	0.30	0.25	0.22	0.06	0.078	0.132

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	78	78	78	78	78	78	78	78	78
MAXIMUM :	1.222	1.632	0.044	0.044	0.0138	0.03178	0.0022	0.023	0.00263
MINIMUM :	0.013	0.005	0.000	0.000	0.0007	0.00014	0.0000	0.000	0.00003
RANGE :	1.209	1.627	0.044	0.044	0.0131	0.03164	0.0022	0.023	0.00260
ARITH. MEAN :	0.131	0.151	0.012	0.005	0.0037	0.00317	0.0007	0.008	0.00050
ARITH. STD. DEV :	0.197	0.253	0.008	0.006	0.0022	0.00440	0.0006	0.005	0.00038
GEOM. MEAN :	0.078	0.073	0.010	0.004	0.0031	0.00184	0.0010	0.008	0.00038
GEOM. STD. DEV. :	2.531	3.196	2.230	2.180	1.7813	2.87831	2.4499	2.150	2.27518
1ST QUARTILE :	0.040	0.032	0.005	0.002	0.0022	0.00100	0.0003	0.004	0.00020
2ND QUARTILE :	0.072	0.065	0.011	0.004	0.0030	0.00219	0.0005	0.008	0.00045
3RD QUARTILE :	0.116	0.166	0.017	0.005	0.0045	0.00307	0.0009	0.010	0.00069

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTHWESTERN REGION/CUMULATIVE/LO-VOL.

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	70	70	70	70	70	70	70	69	70
MAXIMUM :	1.81	5.23	2.65	0.30	0.77	0.86	0.61	0.352	0.845
MINIMUM :	0.00	0.15	0.00	0.00	0.05	0.03	0.00	0.000	0.004
RANGE :	1.81	5.08	2.65	0.30	0.72	0.83	0.61	0.352	0.841
ARITH. MEAN :	0.53	1.27	0.68	0.11	0.14	0.20	0.06	0.064	0.123
ARITH. STD. DEV :	0.47	0.75	0.43	0.06	0.09	0.18	0.09	0.062	0.118
GEOM. MEAN :	0.58	1.09	0.60	0.10	0.13	0.15	0.04	0.055	0.090
GEOM. STD. DEV. :	1.96	1.79	1.81	1.91	1.44	2.06	2.68	1.949	2.333
1ST QUARTILE :	0.16	0.81	0.38	0.06	0.11	0.09	0.02	0.030	0.070
2ND QUARTILE :	0.42	1.16	0.57	0.10	0.14	0.14	0.03	0.046	0.090
3RD QUARTILE :	0.80	1.53	0.84	0.14	0.15	0.21	0.07	0.073	0.153

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	70	70	70	70	70	70	70	70	70
MAXIMUM :	0.449	0.900	0.041	0.088	0.0132	0.01020	0.0079	0.050	0.00165
MINIMUM :	0.005	0.012	0.000	0.000	0.0003	0.00012	0.0000	0.000	0.00012
RANGE :	0.444	0.888	0.041	0.088	0.0129	0.01008	0.0079	0.050	0.00153
ARITH. MEAN :	0.088	0.108	0.007	0.005	0.0024	0.00188	0.0009	0.005	0.00043
ARITH. STD. DEV :	0.094	0.139	0.008	0.010	0.0028	0.00157	0.0013	0.006	0.00026
GEOM. MEAN :	0.059	0.062	0.005	0.003	0.0016	0.00125	0.0010	0.004	0.00038
GEOM. STD. DEV. :	2.434	2.793	2.616	2.351	2.4555	2.86528	2.8715	2.332	1.61994
1ST QUARTILE :	0.030	0.023	0.002	0.001	0.0008	0.00076	0.0002	0.002	0.00030
2ND QUARTILE :	0.056	0.052	0.004	0.003	0.0014	0.00165	0.0004	0.004	0.00039
3RD QUARTILE :	0.106	0.127	0.007	0.005	0.0022	0.00257	0.0011	0.006	0.00047

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTHEASTERN REGION/CUMULATIVE/LO-VOL.

PERIOD OF REPORT : DEC 31,85 TO DEC 30,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	33	33	33	47	47	47	47	32	47
MAXIMUM :	14.38	6.38	8.51	1.93	2.04	2.35	0.66	7.135	0.865
MINIMUM :	0.00	1.74	0.93	0.06	0.12	0.11	0.02	0.047	0.056
RANGE :	14.38	4.64	7.58	1.86	1.92	2.24	0.64	7.088	0.809
ARITH. MEAN :	2.61	3.54	2.49	0.61	0.51	0.59	0.11	0.758	0.233
ARITH. STD. DEV :	2.94	1.13	1.55	0.36	0.42	0.48	0.12	1.355	0.180
GEOM. MEAN :	1.84	3.38	2.17	0.51	0.40	0.45	0.08	0.340	0.187
GEOM. STD. DEV. :	2.25	1.37	1.65	1.90	1.93	2.08	2.27	3.251	1.897
1ST QUARTILE :	0.84	2.73	1.46	0.34	0.27	0.25	0.04	0.152	0.105
2ND QUARTILE :	1.78	3.45	2.12	0.53	0.35	0.45	0.07	0.283	0.185
3RD QUARTILE :	3.04	3.97	2.67	0.77	0.59	0.76	0.13	0.810	0.255

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	47	47	47	47	47	47	47	47	47
MAXIMUM :	0.336	0.402	0.186	0.166	0.0528	0.14100	0.0294	0.045	0.00262
MINIMUM :	0.036	0.032	0.009	0.003	0.0015	0.00063	0.0001	0.003	0.00028
RANGE :	0.299	0.369	0.177	0.163	0.0513	0.14037	0.0293	0.042	0.00234
ARITH. MEAN :	0.132	0.127	0.039	0.017	0.0058	0.00865	0.0027	0.018	0.00076
ARITH. STD. DEV :	0.066	0.082	0.034	0.025	0.0075	0.02228	0.0043	0.010	0.00046
GEOM. MEAN :	0.118	0.105	0.030	0.011	0.0044	0.00354	0.0016	0.016	0.00066
GEOM. STD. DEV. :	1.598	1.879	1.942	2.200	1.8817	2.91164	2.5855	1.741	1.67617
1ST QUARTILE :	0.089	0.072	0.019	0.006	0.0029	0.00164	0.0010	0.011	0.00042
2ND QUARTILE :	0.120	0.110	0.029	0.009	0.0041	0.00355	0.0016	0.016	0.00062
3RD QUARTILE :	0.148	0.166	0.044	0.015	0.0052	0.00514	0.0026	0.023	0.00092

ONTARIO MINISTRY OF THE ENVIRONMENT
SUMMARY STATISTICS OF AMBIENT CONCENTRATIONS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTHWESTERN REGION/CUMULATIVE/LO-VOL.

PERIOD OF REPORT : DEC 31,85 TO DEC 31,86

	SULPHUR DIOXIDE UG/M**3	SULPHATE UG/M**3	TOTAL SULPHUR UG/M**3	TOTAL N -NITRATE UG/M**3	CHLORIDE UG/M**3	CALCIUM UG/M**3	MAGNESIM UG/M**3	POTASSIM UG/M**3	SODIUM UG/M**3
# OF SAMPLES :	54	54	54	60	59	60	60	54	60
MAXIMUM :	44.39	30.73	32.44	4.06	2.65	2.63	0.62	4.729	0.759
MINIMUM :	0.41	1.60	1.28	0.26	0.23	0.14	0.00	0.022	0.055
RANGE :	43.98	29.13	31.16	3.80	2.42	2.49	0.62	4.707	0.704
ARITH. MEAN :	7.60	5.27	5.56	1.15	0.69	0.65	0.15	0.305	0.165
ARITH. STD. DEV :	7.33	4.06	4.57	0.55	0.39	0.44	0.12	0.702	0.128
GEOM. MEAN :	4.94	4.53	4.48	1.04	0.61	0.55	0.12	0.142	0.136
GEOM. STD. DEV. :	2.70	1.68	1.90	1.57	1.61	1.84	2.01	2.704	1.790
1ST QUARTILE :	2.01	3.19	2.57	0.86	0.42	0.37	0.07	0.077	0.094
2ND QUARTILE :	4.94	4.59	4.65	1.08	0.62	0.56	0.11	0.103	0.120
3RD QUARTILE :	12.35	6.13	7.34	1.43	0.80	0.83	0.18	0.214	0.178

	IRON UG/M**3	ALUMINUM UG/M**3	LEAD UG/M**3	MANGANSE UG/M**3	COPPER UG/M**3	NICKEL UG/M**3	VANADIUM UG/M**3	ZINC UG/M**3	CADMIUM UG/M**3
# OF SAMPLES :	60	60	60	60	60	60	60	60	60
MAXIMUM :	0.809	0.801	0.113	0.045	0.0194	0.02215	0.0068	0.165	0.00985
MINIMUM :	0.020	0.023	0.002	0.002	0.0012	0.00036	0.0000	0.001	0.00012
RANGE :	0.789	0.779	0.111	0.043	0.0183	0.02179	0.0068	0.165	0.00972
ARITH. MEAN :	0.180	0.169	0.030	0.011	0.0044	0.00412	0.0017	0.032	0.00098
ARITH. STD. DEV :	0.122	0.128	0.017	0.007	0.0031	0.00442	0.0013	0.025	0.00136
GEOM. MEAN :	0.148	0.134	0.025	0.009	0.0037	0.00267	0.0020	0.025	0.00070
GEOM. STD. DEV. :	1.926	2.003	1.844	1.753	1.7161	2.50484	2.1148	2.250	2.07095
1ST QUARTILE :	0.108	0.092	0.017	0.007	0.0025	0.00145	0.0009	0.016	0.00045
2ND QUARTILE :	0.156	0.126	0.028	0.009	0.0037	0.00247	0.0014	0.024	0.00064
3RD QUARTILE :	0.219	0.226	0.035	0.014	0.0050	0.00419	0.0022	0.043	0.00107